

## **EXECUTIVE SUMMARY**

### ***I Environment Management in Indian Railways***

*Environment is a key survival issue and its challenges and significance have assumed greater importance in recent years. The National Environment Policy, 2006 articulated the idea that environmental protection shall form an integral part of the developmental process and cannot be considered in isolation.*

*Indian Railways (IR) is the single largest carrier of freight and passengers in the country. It is a bulk carrier of several pollution intensive commodities like coal, iron ore, cement, fertilizers, petroleum etc. Being a major consumer of water and energy, policies adopted by the IR have a substantial impact on our environment and on the conservation of both water and energy in the country. The approach of IR towards protection of the environment, therefore, assumes great importance for tackling environment challenges to the country.*

*A review on “Cleanliness and sanitation in IR” was earlier taken up and results included in Audit Report No.6 of 2007 of Comptroller & Auditor General of India (Railways). The report, inter-alia, had highlighted several deficiencies of IR in the management of wastes. Public Accounts Committee in their eighty third report (2008-09) also pointed out similar deficiencies. Nevertheless, adequate action was not taken by IR to integrate environmental concerns with their operational policies.*

*In this background a comprehensive audit exercise was undertaken to assess the performance of IR in managing environmental risks. A phase wise review of the entire gamut of environmental issues related to operation and maintenance of Railways has been planned. This report presents the results of the first part of this exercise.*

### ***II Current Report***

*The operations of IR not only cause air pollution but also cause water and noise pollution. Air pollution mainly arises due to handling of commodities like coal, iron ore, cement, fertiliser etc. at sidings/goods sheds and transportation of these commodities in open wagons. Rules/guidelines framed for transportation of commodities in IR were, prima-facie, guided by commercial considerations. No criteria were laid by the Railway Board to enable it to assess the performance of each zonal railway in minimizing environmental pollution. Absence of clear criteria has been a limiting factor in our audit.*

*Comprehensive guidelines specific to operation of sidings for handling and transport of pollution intensive commodities have not been issued either by the*

*Railway Board, the Central Pollution Control Board (CPCB) or the State Pollution Control Boards (SPCBs). As per statutory provisions all sidings and Railway Good sheds are required to obtain Consent for Operation from their respective SPCBs. Compliance with these guidelines was partial. Even the existing statutory provisions and guidelines issued by the SPCBs of West Bengal, Jharkhand and Odisha were not fully complied by the Railway Administration. At the request of Audit, CPCB assessed the level of pollution and compliance with the statutory provisions at fourteen major stations of IR. Their study revealed that IR generally failed to comply with the statutory provisions. Study also revealed that the values of various gaseous pollutants were in excess of the national ambient air quality standards.*

*There was no system for monitoring the quality and quantum of waste water generated at stations. Railway Board's instruction for installation of Effluent Treatment Plant at all major stations were also not adhered to. Frequently effluents were discharged from major stations to the nearby low lying areas/water bodies and municipal discharge systems resulting in contamination of surrounding surface and ground water.*

*IR is a major user of both water and energy. IR has adopted a number of best practices in the field of conservation of water for improving the efficiency of water use and reducing the use of fresh water by way of recycling of water and rain water harvesting. IR, however, has not made significant progress in implementing water conservation methods. In the past decade, IR has been exploring the use of renewable sources of energy. The use of eco- friendly fuel i.e. blended biodiesel has been in use on the Railways since 2003. It, however, could not make any significant progress in this field. Measures taken by the IR to conserve the flora and fauna alongside the tracks were not adequate, as animal mortality due to train hits remained high.*

*Railway operations generate vast quantities of different types of wastes –both solid and plastic wastes. The Public Accounts Committee in their eighty third report (2008-09) had observed that while making use of plastics, the Ministry of Railways must not lose sight of environmental concern and ensure that applicable rules are adhered to. However, negligence in adherence to instructions relating to adequate and proper collection and segregation and disposal of plastic wastes were observed. Non segregation of degradable and non degradable wastes, inadequate storage facilities and improper disposal of garbage were common at railway stations.*

*IR transports about 14 Million of passengers every day and generates about 3980 MT of human wastes per day which is discharged directly on to the rail tracks. This pollutes the environment at both stations and alongside the tracks. IR has*

been experimenting since 1993 with various models of environmental friendly toilets. Despite prolonged experiments/trials for over two decades on different models of toilets for its coaches, IR has failed to freeze a suitable option to address the environmental hazards caused by defecation in toilets on trains.

### **III Major Audit Findings**

- *IR is yet to formulate comprehensive environmental guidelines for handling and transportation of bulk commodities which are pollution intensive. Thus, no specific criteria have been laid down by the Railway Board to assess the performance of each zone in minimizing environmental pollution. Environmental aspects such as the prevention and control of pollution are only incidental to the core area of operation of each directorate at the Railway Board and zonal levels. There is no separate directorate or cell at the Railway Board level to co-ordinate various environmental issues involved in their operations.*

**(Para 2.1 and 2.2)**

- *As per Air (Prevention and Control of Pollution) Act, 1981, all sidings and good sheds should obtain Consent for Operation from their respective SPCBs. The Zonal Railway Administrations failed to adhere to the statutory provisions in respect of fifty per cent of the sidings test checked. Guidelines issued by the SPCBs of West Bengal and Jharkhand were also not fully complied with in both ER and SER in the good sheds and sidings test checked. In most of the zones coal and iron ore were being carried in open wagons without covering with tarpaulin sheets, thus posing a health hazard to passengers/residents in neighbouring areas.*

**(Para 2.3.1.1, 2.3.1.2 and 2.3.1.3)**

- *The Railway Board had instructed that Effluent Treatment Plants (ETP) be installed at all major stations. On an average, one Effluent Treatment Plant was installed in each zone leaving most of the major stations without an ETP. In their absence, effluents were being discharged in the nearby low lying areas /water bodies and municipal drainage system resulting in contamination of surrounding surface and ground water.*

**(Para 2.5.1)**

- *Railway Board had directed that Water Recycling Plants (WRP) be provided at locations where water is scarce. Test check revealed that in 12*

*out of 17 zones no provision of WRP had been made. The WRPs installed in three zones were sub-optimally utilized. Despite Railway Boards' instructions that Automatic Coach Wash Plants (ACWP) be planned for all coaching Depots; only eight ACWPs had been commissioned over five zones. Similarly, out of 212 stations test checked, rain water harvesting systems were installed at only seven stations in five zones. This was indicative of low level of urgency attached to water conservation.*

**(Para 3.2.1 and 3.2.2)**

- *The energy conservation policy of IR envisaged the use of non-conventional energy sources. Test check revealed that bio-diesel was used in only five zones and its consumption was insignificant. The initiatives of IR for production of bio-diesel remained largely unsuccessful due to short supply of raw material and slow progress in setting up of new esterification plants. It was seen that the overall achievement in electrification of level crossings with solar panels was far below the targets set for the period 2007-11. IR also failed in making major progress in tapping wind energy. During the period of review, only four wind power plants were sanctioned in three zones.*

**(Para 2.3.3.1 and 3.6)**

- *62 elephants died during the review period due to train hits. The majority of elephant deaths occurred in NEFR followed by SR. Despite some initiatives like imposition of permanent speed restrictions, display of signage, regular clearance of vegetation along the track etc., animal mortality rate due to train hits had not declined.*

**(Para 3.7.1)**

- *Despite recommendation of PAC to segregate waste into biodegradable and non- biodegradable, a test check revealed that in 16 out of 23 contracts entered into in four zones for disposal of garbage through outside agencies, no separate clause was incorporated for segregation of wastes. Disposal of garbage by outside agencies was being done either by burning or dumping in Railway premises in 37 stations (all categories) across all zones. At 54 out of 212 stations test checked, the Railway Administration resorted to disposal by burning , dumping into adjacent canal, low lying areas, dumping on Railway land near the track, thereby causing environmental pollution.*

**(Para 4.5)**

- *IR is yet to finalise the technology for 'green toilets', despite two decades of experimentation. Open discharge of toilets from running trains led to premature renewal of 47 Kilometers of rail (SER) and resulted in an excess expenditure of ₹35.79 crores during the period 2007-11 alone.*

**(Para 4.6.3)**

#### **IV Gist of Recommendations**

- *IR needs to formulate a comprehensive environmental policy. It also needs to bring out appropriate guidelines for controlling air and water pollution on its station, yard, work places or in operations in coordination with Central and various State Pollution Control Boards.*
- *A monitoring mechanism needs to be put in place at all levels within IR including the Railway Board for checking compliance with pollution control laws/ guidelines and implementation of its guidelines/instructions on environment.*
- *Environment management may be recognized, monitored and reckoned as a key result area for all Zonal and Divisional Railway Authorities and schemes devised to incentivize better performance in this regard.*
- *To conserve water, measures like Water Recycling Plant, Automatic Coach Wash Plants and Rain Water harvesting system need to be implemented expeditiously by IR.*
- *IR needs to take urgent and effective steps to explore across the country scope for and to maximizing the use of alternative sources of energy besides taking initiatives in conservation of energy. The targets set for adopting energy efficiency measures need to be effectively implemented.*
- *Adequate effort needs to be put in to implement the long term measures for prevention of animal mortality. For this, the monitoring mechanism at the Railway Board's level should be strengthened.*
- *A comprehensive waste management policy needs to be framed and a separate waste management cell established in the Railway Board for dealing with all related issues including minimization of the use of plastics within the Railway stations and proper disposal of plastic waste .*
- *IR needs to put in place a system of estimation of waste generated in IR and also a system for segregation of bio-degradable and non bio-degradable waste. Besides making provision for requisite infrastructure, an effective monitoring system needs to be put in place for ensuring compliance with the statutory regulations issued on the subject from time*

*to time by the government and the recommendations of the Public Accounts Committee.*

- *IR needs to draw up a definite time frame for finalizing eco-friendly toilets to prevent environmental degradation at stations, tracks and water bodies en route.*